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ABSTRACT

Advertisers and other mass media communicators are interested in the potential cognitive and affective effects of various graphic designs, specifically relating to the recall of information and the attitude toward information presented. This study deals with the respondent's recall of information contained within an advertisement as well as the subject's attitude toward the ad itslef and the product contained in the ad when the basic graphic design is manipulated--being either a circular, square, or triangular shaped advertisement. A mock-up of a new general readership magazine was developed with the manipulated advertisements for a new product inserted into three separate versions of the magazine. Ninety housewives and ninety college students were each shown one of the three mock-up magazine versions in a personal interview, in-field situation and responded to the questionnaire immediately after being exposed to the stimuli. It was hypothesized that the circular graphic design would be most effective and that housewives and students would not differ in their reactions to the advertisement. The first hypothesis was given general support, while the second was not. Conclusions are drawn which relate to the study's findings and to future research in the graphic design area. (Author/TO)

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Advertising Graphic Design and Its Effect on Recall and Attitude: A Field Experiment

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Problem

Previous research had uncovered an association between demographic groupings and graphic design preferences. Female and lower socio-economic status college students in particular, had stated a preference for circular, simple designs.[1] This finding is of special interest to advertisers who use graphic designs in their communication with, and persuasion of, mass audiences. The advertiser, as well as other mass media communicators, are interested in the potential cognitive and affective effects of various graphic designs, specifically relating to the recall of information and the attitude toward information presented.

A recent research study has centered on the characteristics of an advertisement which affected its "noticed" score. Over two hundred unique characteristics of each advertisement were isolated. Close to fourteen hundred ads were sampled. Multivariate analysis determined the characteristics which were most predictive of high "noticed" scores. The graphic design of the ad's illustration layout was ranked tenth most important; and the graphic design of the ad's major illustration was ranked eleventh most important. The illustration layout was categorized as either square or horizontal, while the shape of the major illustration was categorized as either square, horizontal, vertical, or circular.[2]

The authors wish to acknowledge the assistance received from student research assistants Mr. Mark Chapel, Mr. Neil Mullin, and Ms.Lauranne Buchanan, in the collection and analysis of the data for this paper.

Valiente (1973) was also concerned with the characteristics of an ad which were most predictive of high reader attention scores. He concludes, "Illustrations appear to be a very effective means of attracting the reader's attention." (p.18)[3] Thus, past research has shown that differential reaction to graphic designs exist for different demographic groupings and that the graphic design of an ad is an important variable in determining the degree to which an ad is "noticed".

This study attempts to extend the previous findings to an experimental manipulation of an advertisement's graphic design in order to determine its effects upon the recall of the ad, and the perception of the ad and the product advertised. Thus, not only is this study systematically determining recall and perceptive effects upon graphic design variations in an applied advertising context, but two separate groups of respondents are interviewed in order to determine between group differences. Housewives as well as college students are used in this study. Much academic research is criticized because college students are used as respondents, especially when one would hope to have the results generalized to the general consumer (in many cases "housewives"). Therefore, this study should help to resolve this issue.

Study

In order to receive recall and perceptive effect responses to the graphic design of an advertisement in as realistic setting as possible, three versions of an ad were placed in each of three identical versions of a general audience magazine. The magazine was a February, 1974 revival of The Saturday Evening Post.

A brand name was originated for a product used by everyone, hand soap. An original brand name was believed to allay any possible responses relating to previous knowledge and personal experience on the part of the respondent. The brand name "Rainbarrel" was decided upon.

Each ad consisted of a black and white photograph picturing two bars of soap on a towel with several towels stacked up behind the soap. On one bar of soap one could see the word "deodorant" carved-out of it. Below the illustration were the words "Rainbarrel Soap" in 72 point, Compugraphic Dom Diagonal type face. Below these words were the words "Manufacturers of the finest toilet articles in America," set in 11 point medium weight, IBM Selectric Univers type face. There was white space on the rest of the page,with at least a one-half inch border of white space for each ad.

The illustration and copy were held constant for each of the three versions of the ad with the shape of the illustration being the only variable manipulated. The illustration was cropped into either a circular, square, or triangular shape. More white space was evident for the circular and triangular shaped ads after cropping than for the square ad, however.

The illustration and copy were then pasted to a white sheet of paper of the same weight and gloss as the other pages in the magazine and pasted into the magazine. The page upon which the paste-up ad was placed was a little stiffer than the rest of the pages in the magazine. The "Rainbarrel Soap" ad was placed in the beginning of one magazine (p.9), in the middle for another (p.69), and at the end of another (p.123). The ads were spaced in this manner so as not to have "order of presentation" be a systematic influence upon overall recall of the advertisement. There were a total of 130 pages in the entire

magazine.

The field experiment consisted of three trained interviewers, each with his own version of the magazine, choosing a quota of thirty housewives and thirty college students to interview. The housewives were chosen from residential areas within the Athens, Georgia community, while the students were chosen within the hallways of the School of Journalism at the University of Georgia in Athens, Georgia. The interviewing was completed within the month of March, 1974.

Each interview, whether in the housewife's living room or in an empty classroom for the student interview, consisted of four distinct parts. First, the respondent was told that The Saturday Evening Post was interested in renewing its publication and that research was needed to decide if there was interest in the magazine's content on the part of the general public. Therefore, the respondent was asked to take her time and read through the publication while the interviewer waited. Second, it was explained how the future of the Post was dependent upon its effectiveness as an advertising medium and that this facet had to be measured. Third, the overall unaided recall of advertising within the magazine was determined. Next, recall of "hand soap" ads was aided. Fourth, the "Rainbarrel Soap" ad was turned to within the magazine and shown to the respondent. After examination of this ad the respondent was asked to respond to twenty semantic differential word-pairs rating "the advertisement", and a separate page of nineteen semantic differential word-pairs rating "the product".

The independent variable in this study is the graphic design of an advertisement's illustration (circular, square, triangular).The dependent variables

are aided and unaided recall of the ad, and evaluations of the ad and the product being advertised. Control variables consist of major respondent subgroupings, housewives and students; and, within housewife subgroupings of age and social class. Treatment by subjects, two-way analysis of variance design was mainly used as the method of statistical analysis. Also, t-test and chi-square analysis was used for some selected group comparisons.

Based upon previous findings by these researchers it was believed that the circular design would be the one to be recalled to a greater degree, evaluated more favorably, and have a more favorable effect upon the perception of the advertised product than the other two designs. Although not having any previous research upon which to base a hypothesis, it was hoped that there would be no difference in the manner in which housewives and students respond to the questionnaire. If no differences are found then the ability is heightened to generalize from student respondents to the general population in future graphic research.

Findings

Recall: Since only 4% of the respondents named "Rainbarrel Soap" in response to the unaided recall question, and since only 4% more specifically recalled the brand name in aided recall this part of the analysis could not be further analyzed. Thus, only 8% of the total number of respondents (N=182, 92 housewives and 90 students) or 15 respondents could precisely recall the "Rainbarrel" brand name. Although the one-time effectiveness of the ad may be debated because of this recall percentage,the lack of respondents recalling the brand name ruled out any further analysis, or the drawing of conclusions about

design recall effects.

Rating the Ad: The rating of the advertisement results in more structured and statistically significant findings. Since every respondent was shown the ad by the interviewer and was then asked to respond to 20 semantic differential word-pair rating the ad, every respondent was included in the analysis and the range of totaled seven-interval semantic word-pair scores is 20-140, whereas the lower score indicates a more favorable rating of the ad.

Two-way analysis of variance, using illustration design and student-housewife groupings as independent variables and the totaled semantic word-pair rating the ad as the dependent variable, results in significant main effect findings. Subsequent t-test analysis comparing the graphic design

- - Table #1 about here - -

ratings show the circular one as the most favorably rated design ($\bar{X}$=69.83) and rated significantly more favorably than is the triangular design ($\bar{X}$=80.67) ($t=3.75$, $df=118$, $p < .001$). The square design is rated second most favorably ($\bar{X}$=74.85) and is also rated significantly more favorably than the triangular design ($t=1.99$, $df=120$, $p < .05$). The circular version was not rated significantly more favorable than the square design, however ($t=1.66$, $df=120$, $p > .05$).

The housewife was found to rate the ad significantly more favorable than does the student ($\bar{X}$=71.97 and 78.27, respectively). Thus, there is a difference in the way the housewife responds to an ad in general which differs from the student response. Since there was no design-population group interaction effect, the housewife's more favorable response is a generalized one and not dependent on the particular graphic design of an ad's illustration.

When t-test analysis compares the ratings for each semantic word-pair for each of the independent variable subgroups, interesting findings result. Table #2 illustrates the relative overall mean scores given to each graphic design for each word-pair rating the "Rainbarrel Soap" ad. The circular design is perceived as being significantly more "Beautiful", "Unusual", "Curved",

- - Table #2 about here - -

"Unique", "Feminine", and "Formal" than either the square or triangular designs. The most commonly used graphic design used in illustrations for advertising, the square, was given very telling ratings. It was rated significantly more, "Relaxed", "Passive", "Simple", "Straight", "Old", "Boring","Comfortable", and "Informal", than either one or both of the other designs.

When similar analysis is presented for housewife-student ratings, interesting findings are likewise revealed. In Table #3, one notes that the

- - Table #3 about here - -

housewife perceives the ad as being more "Beautiful", "Happy", "Active","Good", "Graceful", "Interesting", and "Sincere". There is no instance where the student group perceived the ad in a more favorable manner on any one of the twenty word-pair.

Analysis was not carried out for socio-economic subgroupings among housewives because of some small cell sizes. However, a two-way analysis of variance design was used to analyze graphic design differences and age subgroupings among housewives, and their effects upon the perception of the ad. Table #4 reveals an "age" main effect.

- - Table #4 about here - -

The older housewives, forty-one years old and older, were significantly more favorable in their rating of the ad when compared to the younger housewives. It is interesting to note the lack of a graphic design main effect for housewives. The circular and square designs are both rated more favorably than the triangular design. The student responses enhance the overall greater appeal of the circular design exhibited in the totaled response analysis.

Rating the Product: A two-way analysis of variance design was used to analyze respondent evaluations of the product being advertised on the basis of nineteen, seven-interval semantic differential word-pair, giving the range of response from 19, the most favorable rating to 133, the most unfavorable rating. The criterion variables were the design of the ad and the housewife-student groupings. Table #5 shows how no significant effects were uncovered.

- - Table #5 about here - -

There was a tendency for the housewife to be more favorable in her evaluation of the product ($p < .10$).

When the mean scores by housewives and students are outlined for each semantic word-pair predictably few significant differences are revealed. It

- - Table #6 about here - -

is informative to note that the housewife, to a significant degree more than the student, rates the product as being "Good", "Complex", "Fragrant", and "Unusual".

When the housewives' responses are looked at separately with graphic design and age as the independent variables and perception of the product as the dependent variable, no significant differences are noted. The older re-

- - Table #7 about here - -

spondents do rate the product as more favorably perceived than do the younger respondents, however.

In summary, the recall scores were too meager to analyze in-depth. Only 8% of all respondents specifically named "Rainbarrel Soap" as an ad recalled from the magazine. Responses revealed a significant graphic design effect upon the perception of the ad, however. The circular design induced more favorable evaluations of the advertisement. Likewise, housewives, especially older ones, were significantly more likely to favorably evaluate the ad, irrespective of graphic design, than were students. Finally, no differences were noted in the manner by which respondents rated the product being advertised.

Conclusions and Implications

One would conclude from the findings that a circular illustration in an advertisement would be more effective in heightening the viewer's evaluation of the advertisement. However, this favorable effect does not follow through to the viewer's perception of the product being advertised. A particular graphic design does not affect the "image" of the product. Most likely, the content of the ad is more important in bringing about this effect. Thus, an ad may be made more appealing and may be a better "showcase" for an advertised product if it is circularly shaped and aimed at a cross-section of the population, but there are other variables (which need to be further investigated) which would seem to be more important in affecting one's perception of the product itself.

Evidence seems to support the contention that housewives will enter an advertising research situation with an initially more favorable attitude toward

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advertisements, in general, than will college students. Therefore, projection of findings from college student respondents to the consuming public concerning advertising-related research does not seem justified. The reason could be the student's greater cynicism toward society's economically-oriented institutions along with the acceptance of society's institutions by housewives, especially older housewives, or merely the housewives' appreciation of the fact that ads do help one make more effective and efficient purchasing decisions. Previous findings by one of the authors would support the initial belief of the perceived role of advertising as an institution in our society. He found that high authoritarians (in this case the older housewives) were more favorably predisposed to the institution of advertising.[4] It seems that this favorable predisposition carries over into the rating of a particular advertisement.

The graphic design of an advertisement's illustration does influence the viewer's perception of the ad. Further research should sort out the effects of more complex graphic designs for different types of products and for different types of viewers. Likewise, research should attempt to differentiate the effect of graphic design changes in the layout of the ad as well as in the graphic design of the ad's illustration. Likewise, an important area of research concerns the ultimate effect of one's evaluation of the advertisement and the consequent effects upon one's evaluation of the product, and the propensity to purchase the product.

Footnotes

1. Kosak, Hermann H. and Stuart H. Surlin, "Measuring Simple and Complex Graphic Design Preferences", paper presented at Association for Education in Journalism Convention, Graphics Division, Ft. Collins, Colorado, August 1973.

2. Assael, H., J.H.Kofron, and W. Burgi, "Advertising Performance As a Function of Print Ad Characteristics", Journal of Advertising Research, Vol.7: 2, pp. 20-26.

3. Valiente, Rafael, "Mechanical Correlates of Ad Recognition", Journal of Advertising Research, Vol. 13:3, pp. 13-18.

4. Surlin, Stuart H., "The Attitudes of Prejudiced Individuals Toward the Institution of Advertising", Journal of Advertising, Vol. 2:2, 1973, pp.35-40.

Table #1

2-Way ANOVA Concerning Design of Ad
and Student-Housewife Subgroups
and Rating of the Advertisement
(N=182)

Means (Range 20-140, 20=most favorable)

	$\bar{X}$		$\bar{X}$
Triangle -	80.67	Housewife -	71.97
Square -	74.85	Student -	78.27
Circle -	69.83		
Total -	75.12		

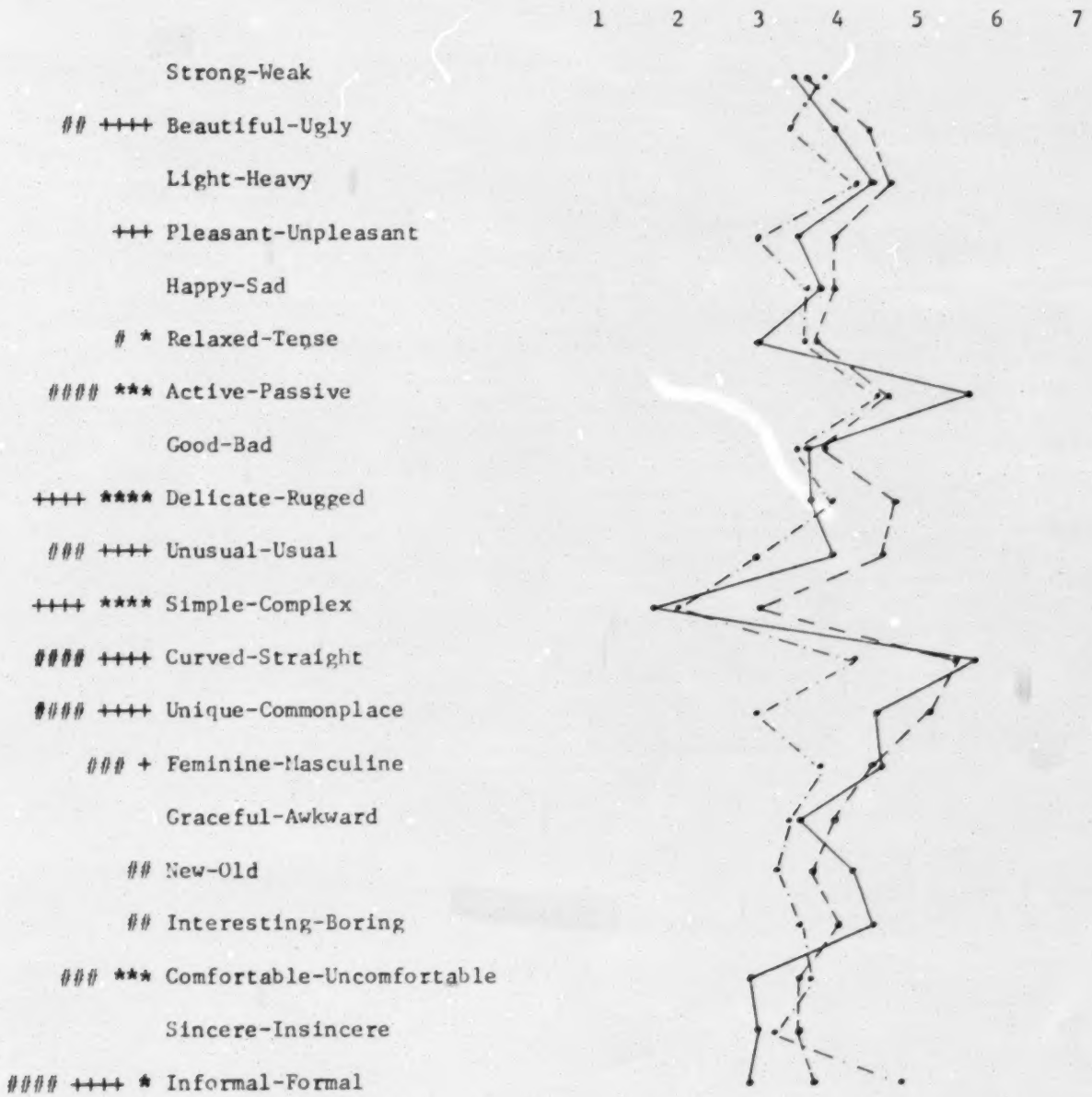
Source of Variance	df	SS	MS	F	P
Main Effects:					
Design of Advertisement	2	3564.23	1782.11	7.03	0.001
Student-Housewife Subgroup	1	1803.26	1803.26	7.11	0.008
Interaction:					
Design x Subgroup	2	567.07	283.54	1.12	0.33
Error	176	44618.97	253.52		

Table #2

Graphic Design Semantic Word-Pair Mean Score Differences Rating the Advertisement

(N=182)

Rainbarrel Soap Advertisement



Significance levels for Triangle-Square Comparison		Significance levels for Triangle-Circle Comparison		Significance levels for Square-Circle Comparison	
****	.001 level	++++	.001 level	####	.001 level
***	.01 level	+++	.01 level	###	.01 level
**	.02 level	++	.02 level	##	.02 level
*	.05 level	+	.05 level	#	.05 level

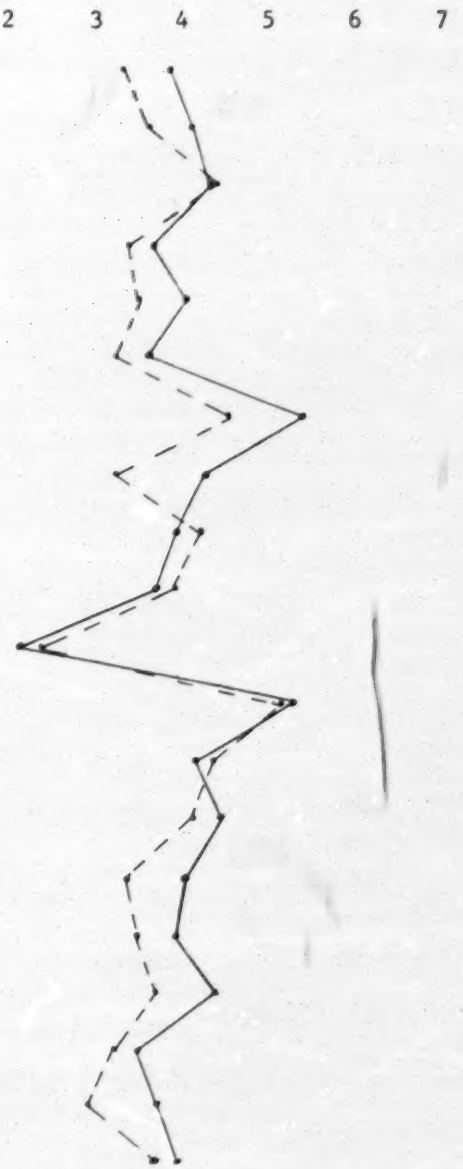
Key: Triangle --- Square ___ Circle -·-

Table #3

Student-Housewife Semantic Word-Pair Mean Score Differences Rating the Advertisement

(N=182)

Rainbarrel Soap Advertisement



	Strong-Weak
*	Beautiful-Ugly
	Light-Heavy
	Pleasant-Unpleasant
***	Happy-Sad
	Relaxed-Tense
***	Active-Passive
****	Good-Bad
	Delicate-Rugged
	Unusual-Usual
	Simple-Complex
	Curved-Straight
	Unique-Commonplace
	Feminine-Masculine
***	Graceful-Awkward
	New-Old
*	Interesting-Boring
	Comfortable-Uncomfortable
***	Sincere-Insincere
	Informal-Formal

* Significant at .05 level
** Significant at .02 level
*** Significant at .01 level
**** Significant at .001 level

--- Housewives
___ Students

Table #4

2-Way ANOVA Concerning Design of Ad
and Housewife Age and
Rating of the Advertisement
(N=92)

Means (Range 20-140, 20=most favorable)

	$\bar{X}$		$\bar{X}$
Triangle	72.16	Younger (40 years and less)	74.84
Square	66.40	Older (41 years and more)	62.19
Circle	66.98		
Total	68.52		

Source of Variance	df	SS	MS	F	P
Main Effects:					
Design of Advertisement	2	442.87	221.44	0.76	0.47
Age	1	2633.89	2633.89	9.05	0.003
Interaction:					
Design x Age	2	458.04	229.02	0.79	0.46
Error	86	25020.82	290.94		

Table #5

2-Way ANOVA Concerning Design of Ad
and Student-Housewife
Subgroups and Rating of the Product
(N=182)

Means (Range 19-133, 19=most favorable)

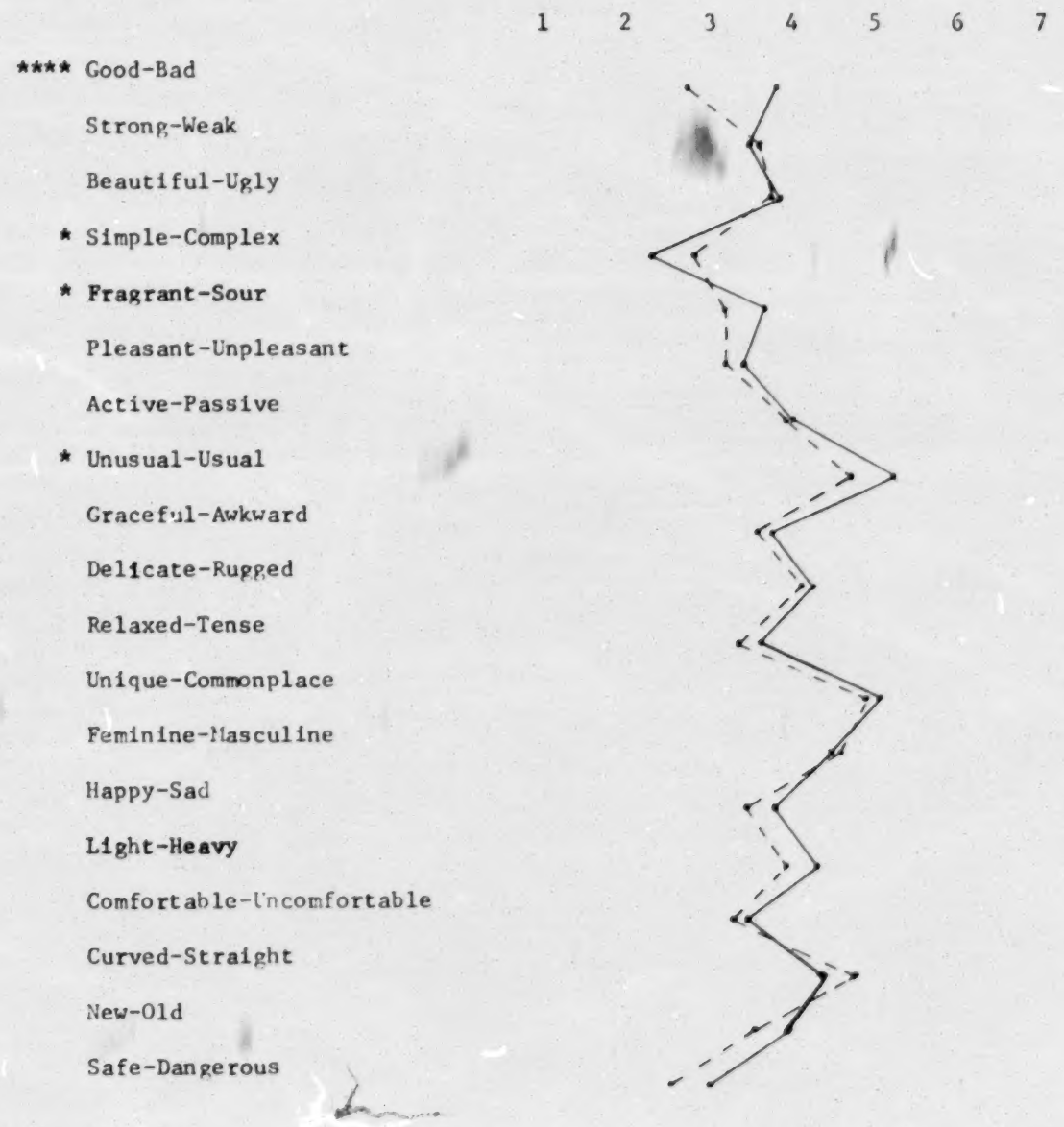
	$\bar{X}$		$\bar{X}$
Triangle -	69.45	Housewife -	68.36
Square -	70.98	Student -	71.84
Circle -	69.88		
Total -	70.10		

Source of Variance	df	SS	MS	F	P
Main Effects:					
Design of Advertisement	2	75.43	37.72	0.19	0.83
Student-Housewife Subgroup	1	550.66	550.66	2.71	0.10
Interaction:					
Design x Subgroup	2	511.56	255.78	1.26	0.29
Error	176	35765.58	203.21		

Table #6

Student-Housewife Semantic Word-Pair Mean Score Differences Rating the Product
(N=182)

Rainbarrel Soap



* Significant at .05 level
** Significant at .02 level
*** Significant at .01 level
**** Significant at .001 level

--- Housewives
___ Students

Table #7

2-Way ANOVA Concerning Design of Ad
and Housewife Age and
Rating of the Product
(N=92)

Means (Range 19-133, 19=most favorable)

	$\bar{X}$		$\bar{X}$
Triangle	65.38	Younger (40 years and less)	69.18
Square	67.84	Older (41 years and more)	65.74
Circle	69.15		
Total	67.46		

Source of Variance	df	SS	MS	F	P
Main Effects:					
Design of Advertisement	2	160.78	80.39	0.35	0.70
Age	1	195.03	195.03	0.85	0.36
Interaction:					
Design x Age	2	32.33	16.17	0.07	0.93
Error	86	19731.64	229.44		